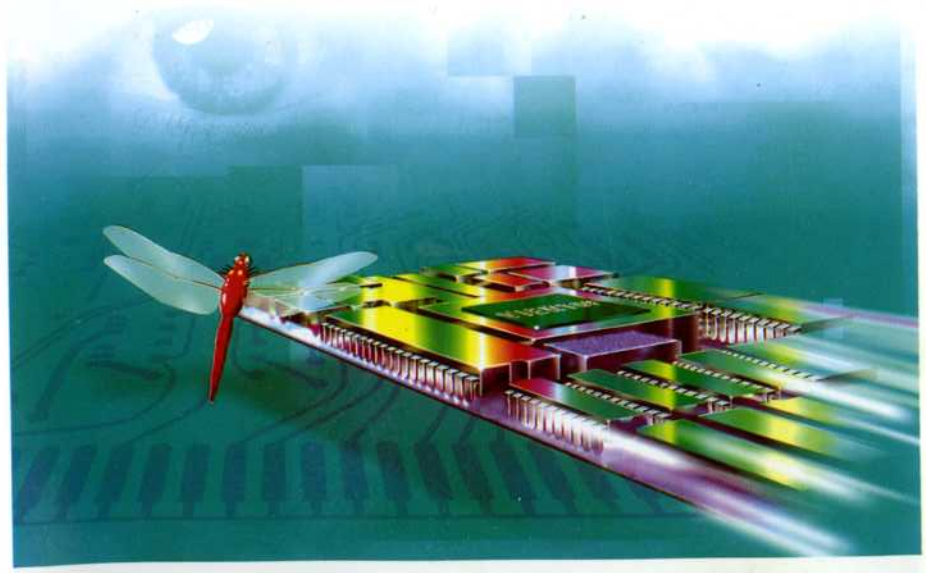
92-ES002-BK

BP-S3x Graphics/Video Accelerator Card

User's Guide



VIEWTOP BP-S3x

Graphics/Video Accelerator Card

User's Manual

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Version 2.00, Printed in Taiwan

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LIMITED WARRANTY

SOFTWARE

We warrants the physical diskettes and documentation enclosed in this package to be free of any defects in material and workmanship for period of 60 days from the date of purchase. This warranty is limited to the original purchaser of the product and is not transferable. We will replace the defective products only when it is returned to us by the original purchaser. The remedy for this breach of warranty is limited to replacement only and shall not cover any damages, including but not limited to the loss of profit, special, incidental, consequential and other similar claims.

HARDWARE

We warrants to you that the hardware will be free from significant defects in materials and workmanship for a period of one year from the date of purchase. We sole and exclusive remedy with respect to defective hardware will be, at our option, to repair or replace such hardware.

DISCLAIMER

We can not warrant the performance or results you may obtain by using the software, hardware or documentation. With respect to the use of this product, in no event shall we be liable for any loss of profit or any other commercial damage, including but not limited to special, incidental, consequential or other damages.

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FCC COMPLIANCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio communications, which can be determined by turning the equipment off and on, we encourage the users to try one or more of the following measures:

* Reorient or relocate the receiving antenna.
* Move the equipment away from the receiver.
* Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
* Consult the dealer or an experienced radio/TV technician for additional suggestions.

CAUTION

Any changes or modifications to the equipment by the user not expressly approved by the guarantee or manufacturer could void the user's authority to operate such equipment.'

FCC ID : VIEWTOP Graphics Card BP-S3Ax/S3Bx ⇨ ILLS3-103

WARNING

Only equipment certified to comply with Class B digital devices should be attached to this equipment, and must have shielded interface cables. Operation with a non-certified computer is likely to result in interference to radio and TV reception.

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INTRODUCTION

Congratulations on the purchase of your **VIEWTOP BP-S3x** display card that is based on S3 family chip. We would like to take a moment to familiarize you with some of your new board's special features.

VGA Compatibility

The **VIEWTOP BP-S3x** display card provides full VGA BIOS and registers compatibility also fully compatible with VGA and extended modes.

Extended Resolution and Colors on Multi-frequency Monitors

The **VIEWTOP BP-S3x** display card supports extended resolutions and colors conforming to generally accepted monitor frequency standards (many other VGA cards are not compatible with popular monitor standards).

Feature of VIEWTOP BP-S3x

Feature	Product Model Number			
	BP-S34x	BP-S39x	BP-S3Ax	BP-S3Bx
Accelerator Chip	Trio64	Trio64V+	Trio64V+	Trio64V+
32-bit PCI Bus interface	YES	YES	YES	YES
64-bit Graphic Engine	YES	YES	YES	YES
64-bit DRAM interface	YES	YES	YES	YES
Display Control Interface	NO	YES	YES	YES
Video Playback Engine	NO	YES	YES	YES
Software MPEG Driver	NO	YES	YES	YES
S3 MPEG Connector	NO	YES	YES	YES
Max Memory Size	2M Byte	2M Byte	4M Byte	4M Byte
Max Resolution 256Color	1600×1200	1600×1200	1600×1200	1600×1200
Max Resolution 65KColor	1024×768	1024×768	1280×1024	1280×1024
Max Resolution 16.8 MColor	800×600	800×600	1024×768	1024×768
Hardware Line Engine	YES	YES	YES	YES

What's different between BP-S3x and BP-S3xE:
The S341/ S39/ S3A/ S3B are using normal (fast-page mode) DRAM, and the BP-S34E / S39E/ S3AE/ S3BE are using EDO (extended data out) DRAM. EDO DRAMs are becoming increasingly available on the market. By allowing -CAS to rise before data is valid (and thereby overlapping the -CAS precharge with the data out) and by holding data valid for a longer period of time, EDO DRAMs reduce the minimum cycle time. This means that the graphics controller can use a faster memory clock (MCLK), resulting in improved overall performance.

High Speed

The **VIEWTOP BP-S3x** display card is based on the S3 family chip (Trio64/64V+, ...etc.) which is the most powerful graphics accelerator chip with built-in local bus interface . Windows acceleration capability and multimedia video playback function support (except Trio64). If you have purchased the local bus display card, your display speed will no longer be limited by the slow 8/16-bit speed. Your display bus speed will be greatly enhanced to 30/33Mhz (PCI).

Software Drivers List

- ⇨ **VIEWTOP BP-S3x** Utilities
- ⇨ 3D Studio 3.0/4.0
- ⇨ AutoCAD R12/R13
- ⇨ Microsoft Windows 3.1x
- ⇨ Microsoft Windows NT 3.5x
- ⇨ Microsoft Windows 95™
- ⇨ MicroStation 4.0/5.0
- ⇨ DCI Drivers / DirectDraw Driver (for BP-S39x/S3Ax/S3Bx)
- ⇨ Software MPEG Driver (for BP-S39x/S3Ax/S3Bx)
- ⇨ OS/2 3.0 Warp (Optional)

Due to the popularity of S3 family VGA chip, most leading software will be supported.

Display Control Interface for BP-S39x/ S3Ax/ S3Bx

The display control interface (DCI) for the Microsoft windows operating system is a driver-level software interface which provides access to display device while maintaining compatibility with Windows GDI. It works with Microsoft Windows 3.1x .

DCI provides a device-independent way for Windows subsystem software such as 3-D Graphics packages, games interface, or digital video codecs to access display device-dependent features.

DCI provides access to the following display device-dependent benefits:

- ⇨ Improved video playback quality through access to YUV color formats.
- ⇨ Improved graphics and video quality through access to image stretching hardware.
- ⇨ Support double-buffered graphics.
- ⇨ Simultaneous access to standard and enhanced display device memory areas.
- ⇨ Smooth rendering of 3D graphics.
- ⇨ Graphics overlaid on video in a window.

DirectDraw for BP-S39x/ S3Ax/ S3Bx

DirectDraw for the Microsoft Windows operating system is software interface which provides direct access to display devices while maintaining compatibility with Windows GDI. It works with Windows 95 and will work with Windows NT. DirectDraw allows direct manipulation of video display memory, hardware blters, hardware overlays, and page flipping.

DirectDraw provides access to the following display device-dependent benefits:

- ⇨ Support for double-buffered and page flipping graphics.
- ⇨ Access ton and control of, the video card's blter.
- ⇨ Support for 3D z buffer.
- ⇨ Hardware assisted overlays with z ordering.
- ⇨ Improved graphics quality through access to image-stretching hardware.
- ⇨ Simultaneous access to standard and enhanced display device memory areas.

Software Installation Important Notice

Please check your diskette pack first before you start to play with your **VIEWTOP BP-S3x** display card. Please follow the instructions of this manual to run your software. This manual will tell you how to install and utilize the compressed formats software. Sometimes, you may find the installed software directories name which are not exactly the same as the directories name described in this manual, but, you will soon find out that is the only difference which will not disturb you is using this manual. All the file names described in this manual will not show up when you use DOS command "DIR" to find them on your compressed format diskettes, but, after you installed the software, you can find them on your hard disk related directories. Thus, to run the software correctly, you should just change the working drive from floppy driver to hard driver whenever this manual mentioned.

Customer Service

To serve you better, we have created a Bulletin Board System (BBS). The BBS number is :

886-2-5622774

HARDWARE INFORMATION

Understanding your VIEWTOP BP-S3x

The **VIEWTOP BP-S3x** display card consists of the following key components and functions:

1. The S3 VGA Graphics Accelerator ASIC Chip
2. The Memory (Fast Page Mode DRAM or EDO DRAM)
3. Video BIOS
4. VGA 15 pin connector
5. PC bus connector (PCI BUS)
6. Feature Connector
7. S3 Multimedia Connector
8. VCODAC(Instead of Clock IC& DAC)

Memory Configuration

The **VIEWTOP BP-S3x** Graphics Accelerator card may come with three possible memory configurations: 1MByte, 2Mbyte and 4MByte, you may upgrade the memory capacity be inserting more 256Kb×16 type DRAMs.

Memory Configuration Rules

ITEM	Bank 0	Bank 1	Bank 2
BP-S39x	U3, U7	U1,U2	
BP-S3Ax	U3, U7	U1,U2	U8, U9, U10, U11
BP-S3Bx	U3, U7	U1,U2	U8, U9, U10, U11

The size of memory on your display card determines the graphic resolutions and number of colors that the card can support.

The following resolutions/colors require 1MByte of memory

- 1280×1024 in 16 colors
- 1024×768 in 256 colors
- 800×600 in 32K and 64K colors
- 640×480 in 32K, 64K, and 16.8 Million colors

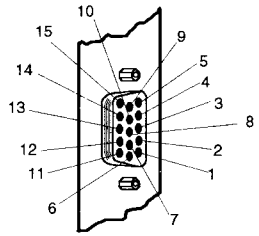
The following resolutions/colors require 2MByte of memory

- 1600×1200 in 256 colors
- 1024×768 in 32k, 64k colors
- 800×600 in 16.8 Million colors

The following resolutions/colors require 4MByte of memory

- 1280×1024 in 32k,64k colors
- 1024×768 in 16.8M colors

VGA Connector Information



VIDEO PORT CONNECTOR PIN OUT			
PIN	STANDARD VGA	DDC1	DDC2
1	Red Video	Red Video	Red Video
2	Green Video	Green Video	Green Video
3	Blue Video	Blue Video	Blue Video
4	Monitor ID Bit 2	Monitor ID Bit 2	Monitor ID Bit 2
5	Ground	DDC Return	DDC Return
6	Red Return	Red Return	Red Return
7	Green Return	Green Return	Green Return
8	Blue Return	Blue Return	Blue Return
9	Key	+5V Supply	+5V Supply
10	Sync Return	Sync Return	Sync Return
11	Monitor ID Bit 0	Monitor ID Bit 0	Monitor ID Bit 0
12	Monitor ID Bit 1	Data from Display	Bi-directional Data
13	Horizontal Sync	Horizontal Sync	Horizontal Sync
14	Vertical Sync	Vertical Sync	Vertical Sync
15	Monitor ID Bit 3	Monitor ID Bit 3	Data Clock (SCL)

The Display Data Channel, "DDC", will allow the display to inform the host system about its identity and, depending on the level of DDC used, communicate additional levels of display capabilities. The communication channel is defined two levels, one uni-directional (DDC1) and one bi-directional (DDC2). The DDC channel is implemented in a configuration that uses a 15 pin VGA connector as show as above.

Feature Connector Information

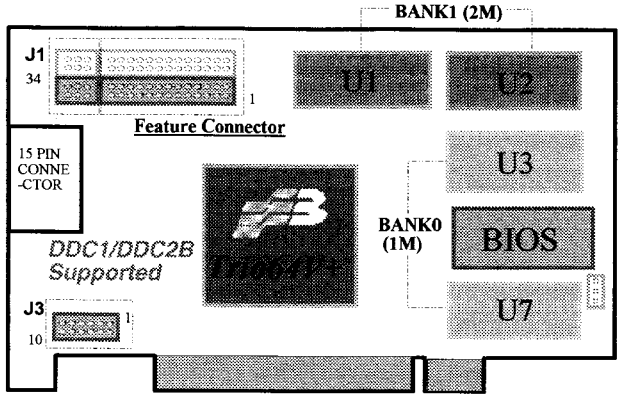
Feature Connector pin out					
PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION
1	PBX/C0	10	BLANK	19	ECLK
2	PGX/C1	11	HSNC	20	Not Used
3	PRX/C2	12	VSNC	21	GND
4	PIX/C3	13	GND	22	GND
5	SBX/C4	14	GND	23	GND
6	SGX/C5	15	GND	24	GND
7	SRX/C6	16	GND	25	Not Used
8	SIX/C7	17	EVID	26	Not Used
9	OPCLK	18	ESNC		

S3 Multimedia Connector (On BP-S39x / S3Ax / S3Bx)

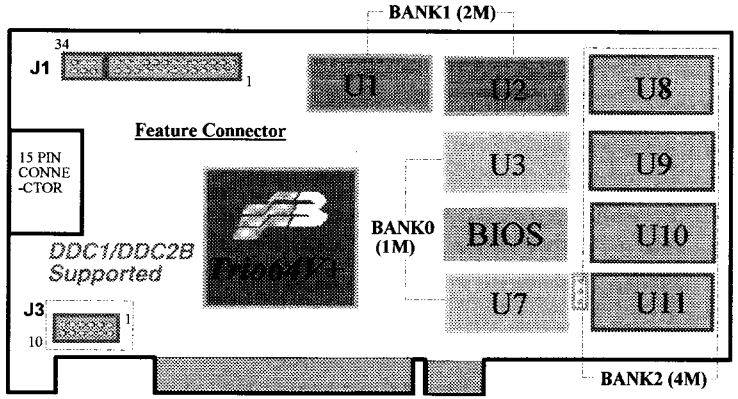
S3 Multimedia Connector							
J1 / J1X				J3			
PIN29	IIC CLK	PIN30	GND	PIN1	INTR	PIN2	INTA
PIN31	IIC DAT	PIN32	NC	PIN3	RESET	PIN4	GND
PIN33	GOP0	PIN34	GOP1	PIN5	VCC	PIN6	VCC
				PIN7	GND	PIN8	GND
				PIN9	+12V	PIN10	+12V

The S3 Multimedia Connector is used for **VIEWTOP** BM-S3x MPEG-1 daughter board (hardware MPEG playback system). Please see the **VIEWTOP** BM-S3x MPEG-1 daughter board User's Manual for more information.

Configuring the VIEWTOP BP-S39x Graphics Accelerator



Configuring the VIEWTOP BP-S3Ax/S3Bx Graphics Accelerator



FCC ID : ILLS3-103

Software Installation

Now that you've properly configured and installed your **VIEWTOP BP-S3x** multimedia accelerator, you're ready to install the supplied drivers and utilities. In this part of the manual, we'll explain what drivers are, which kinds of drivers are compatible with your accelerator, how you select and install the drivers you need, and how you use the utilities provided to optimize your accelerator for specific tasks. If you're new to computers, you should read this part of the manual in its entirety; even if you're a seasoned power-user, you'll find a host of tips and tricks on subjects like optimizing DirectDraw, achieving smooth MPEG playback and the relationship between refresh rates and performance, that will help you get the most from your **VIEWTOP BP-S3x** multimedia accelerator.

About Drivers...

Your **VIEWTOP BP-S3x** multimedia accelerator is completely compatible with the original IBM VGA standard, and as such needs no special display drivers to run application software correctly at standard VGA resolutions and color depths. However, optimized display drivers are supplied with your accelerator because they provide better performance, deeper color depths and higher resolutions to supported software application packages like Microsoft Windows and Autodesk DOS protect-mode products.

Your **VIEWTOP BP-S3x** multimedia accelerator supports resolutions as high as 1600x1200 pixels, and color depths of up to 24 or 32 bits per pixel (bpp) — far beyond the original 640x480 pixel, 16-color VGA standard. Higher graphics resolutions provide greater clarity and detail when using the supplied drivers in graphics-based business and desktop publishing applications; deeper color depths deliver more photo-realistic renditions for professional image-editing and multimedia applications.
When configuring your software to work with your new accelerator, it may help to bear in mind that drivers compatible with your **VIEWTOP BP-S3x** multimedia accelerator fall into three general categories:

- **Optimized Display Drivers** — At this time, highly optimized display drivers are provided for Microsoft Windows 3.1, 3.11 and Windows for Workgroups, Windows 95, and Windows NT, as well as Autodesk MS-DOS based products such as 3D Studio and AutoCAD. These drivers take full advantage of your VIEWTOP BP-S3x multimedia accelerator's advanced architecture and provide many additional features.

> Note that drivers for your **VIEWTOP BP-S3x** multimedia accelerator are revised periodically — you should consult your dealer, local user support groups or on-line services from time to time to ensure you have the latest driver releases.

- **SuperVGA and VESA Drivers** — Your VIEWTOP BP-S3x multimedia accelerator includes support for the latest VESA video BIOS extensions (VBE), which makes it compatible with a wide range of applications and environments that either require a VESA-compliant BIOS or provide a VESA-compliant driver. These applications include applications like Autodesk Animator, as well as Windows 95 and many of the latest DOS-based entertainment and multimedia titles. VESA or SuperVGA (SVGA) drivers can typically drive your application to higher resolutions and deeper color depths, but because they are written to interact with a wide range of graphics controllers from disparate manufacturers, they may not call all your VIEWTOP BP-S3x multimedia accelerator performance-enhancing features into play.
- **Standard VGA Drivers** — Finally, your VIEWTOP BP-S3x multimedia accelerator is fully compatible at both the register and BIOS level with the original IBM VGA display adapter. In addition, your accelerator provides register-level CGA and EGA backwards compatibility, allowing you to run virtually any application in its native, default display mode. Your new accelerator also supports improved text resolutions of up to 132x43 columns and rows, and can usually support the special text drivers supplied with a number of popular "legacy" DOS applications, like Lotus 1-2-3. Higher text resolutions allow terminal emulation and provide greater clarity and readability when using these special drivers.

As a general rule you should almost always select an optimized display driver specifically written for your multimedia accelerator if one is available, and a VESA or SVGA driver if one is not. Only as a last resort should you run your applications using the default standard VGA driver provided with your application software.

Installation

To facilitate the smooth installation of the optimized display drivers and utility software provided with your **VIEWTOP BP-S3x** multimedia accelerator, you should read the instructions in this section carefully prior to attempting installation. The optimized display drivers for your **VIEWTOP BP-S3x** multimedia accelerator may have been provided on diskette, you must install most of the drivers and utility software using the supplied Setup program.

> Many of the files on the software installation diskette are compressed. Do not attempt to install drivers by copying the files manually. Unless otherwise noted, you must use the supplied Setup programs to install the drivers and utilities.

The Setup is dual-executables, which means that it can be run under either DOS or Windows, and function identically; unless otherwise noted. Note that there is no need to run the Setup program in both environments: while you cannot install the Windows drivers from the DOS prompt, you can install the

DOS utilities and DOS protected mode CAD/CAM drivers under Windows.

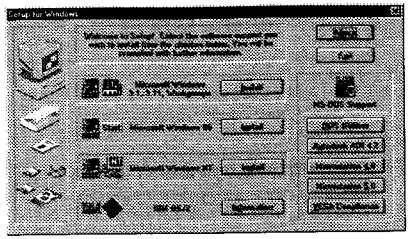
Regardless of whether you're running Microsoft Windows or whether you prefer the DOS command prompt, before you begin it is important to note that most display drivers need to have the relevant software application already installed prior to installing the optimized display drivers. In addition, many of the installation procedures assume that you are familiar with both the relevant software application and certain operating system commands. Please review the relevant operating system commands and the pertinent sections of your application software's user manual before performing installation.

Installation under Windows

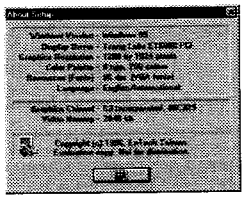
To install the optimized display drivers and utilities under Windows, follow these steps:

> If you are performing a driver and utility upgrade, first configure Windows for a standard Windows display driver and ensure that the VIEWTOP Control Panel is not running before continuing.

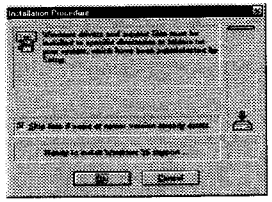
1. If you received diskettes with your **VIEWTOP BP-S3x** accelerator and have not already done so, first make a backup copy of the driver installation diskette(s) and store the original in a safe place. Refer to your operating system manual for details on how to duplicate a diskette. You should use the backup copy you have made for all subsequent steps. (Alternatively, you can copy all the files on the driver installation diskette to your hard disk and install individual drivers from there — the distribution diskette is not copy-protected. The steps which follow assume you are installing from a diskette.)
2. Insert the backup copy of the driver installation diskette in drive A: or B: and run the Setup program by selecting Run from the Windows Program Manager or Windows 95 Start menu. Type A:**SETUP** [Enter] (or B:**SETUP** [Enter] as appropriate) in the Run dialog box that appears on screen. The Setup dialog box will appear, providing you with a range of options similar to the one illustrated below.



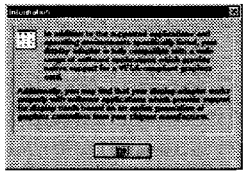
If you wish, click on the About button or press [Alt+A]. A dialog box similar to the one illustrated below will appear, providing information about your multimedia accelerator and current Windows configuration, as well as program copyright information.



3. If you're using a pointing device, click on the option you wish to install; if you're using a keyboard, select the option you wish to install by holding down the [Alt] key and pressing the option's unique accelerator key. Setup will search your environment path in an attempt to locate the installed application, and you will be prompted to confirm a directory where the files should be copied (normally the application's directory). Depending on the application support you selected for installation, you may also have the option of entering a drive and directory of your choice. If the directory you choose does not exist, it will be created for you and the relevant files will be copied there or to appropriate sub-directories. A typical installation dialog box is illustrated below.



Alternatively, you may be presented with a dialog box which provides you with details about the support available for the application you selected, as illustrated below.



4. If you are installing support for Windows 95 or Windows NT, you will next be asked to install drivers directly from the distribution diskette using standard Windows procedures. This additional step ensures complete compatibility with Microsoft's driver installation guidelines, and allows Windows to register the new drivers in its database.

   If you are running Windows 95, you will also be asked if you want the VIEWTOP Control Panel to be auto-matically loaded each time you start Windows. Unless you are running Windows 95 with a limited amount of installed memory, we strongly recommend you answer Yes to this option. The VIEWTOP Control Panel gives you instant access to up to five potentially very different display settings, which you can configure to suit your various working styles and applications. See the chapter on the *VIEWTOP Power Tools for Windows* below for further information.

5. After the installation procedure has completed, you will be returned to Setup. Select another option for installation as required. To exit Setup, click the Exit button.

6. Finally, refer to any pertinent information in the section on *Supplemental Application Notes* below, which may provide additional tips on driver configuration.

Installation under DOS

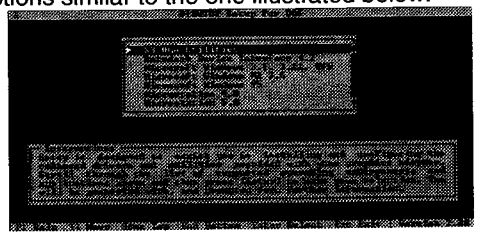
To install the optimized display drivers and utilities under DOS, follow these steps:

1. If you received diskettes with your accelerator and have not already done so, first make a backup copy of the driver installation diskette(s) and store the original in a safe place.

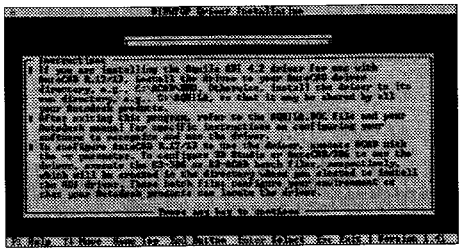
Refer to your operating system manual for details on how to duplicate a diskette. You should use the backup copy you have made for all subsequent steps. (Alternatively, you can copy all the files on the driver installation diskette to your hard disk and install individual drivers from there — the distribution diskette is not copy-protected. The steps which follow assume you are installing from a diskette.)

> If you are running Setup in a DOS session under Windows 95 or Windows NT, Setup will automatically run as a Windows application. Refer to the previous section on *Installation under Windows* for instructions.

2. Insert the backup copy of the driver installation diskette in drive A: or B: and run the Setup program by typing A:SETUP [Enter] (or B:SETUP [Enter] as appropriate) at the DOS command prompt. The Setup dialog box will appear, providing you with a range of options similar to the one illustrated below.



3. Scroll through the list of options by using a mouse or the cursor keys until you come to the option you wish to install. Click on the left mouse button or press [Enter] to select the option, or press [F1] to obtain information on the option. Depending on the option you have selected, you may be presented with relevant application notes, similar to the screen illustrated below. Read these additional instructions carefully. (If you have a printer connected to LPT1 and it is on-line, you can print the instructions by pressing [PrtScr].)



4. After reading the application notes (if any), click the left mouse button or press [Enter] to continue with the installation procedure. Setup will search your environment path in an attempt to locate the installed application, and you will be prompted to confirm a directory where the files should be copied (normally the application's directory). You may also have the option of entering a drive and directory of your choice. If the directory you choose does not exist, it will be created for you and the relevant files will be copied there or to appropriate sub-directories.
5. Finally, if an application specific setup program or procedure is required in order to configure the software to recognize the new driver(s), and Setup has been able to locate the application specific program, you may be given the option of running the relevant program to configure the application at this time.
6. After the installation procedure has completed, you will be returned to Setup. Select another option for installation as required. To exit Setup, click on the right mouse button or press [Esc]. You will be prompted for confirmation before returning to the DOS command prompt.
7. Finally, refer to any pertinent information in the section on *Supplemental Application Notes* below, which may provide additional tips on driver configuration.

Supplemental Application Notes

The following application notes provide supplemental information on specific applications and operating environments, which may be merely of interest or important in assisting you with driver installation and configuration procedures.

Autodesk ADI

After using Setup to install the Autodesk ADI driver, be sure to run the appropriate batch file to configure your environment so that your Autodesk product can locate the ADI driver. These batch files are created automatically for you when you install the ADI driver, and must be run before you load your Autodesk product. A text file named PANACEA.TXT is also copied, which you should consult for additional information.

3D Studio

If you plan to use the ADI driver with Autodesk 3D Studio, you must delete the 3DS.CFG file and make the following changes to the 3DS.SET file in your 3D Studio directory:

- Change the line that starts with RENDER-DISPLAY = VGA320X200 to read RENDER-DISPLAY = RCPADI.
- Change the line that reads MAIN-DISPLAY = to read MAIN-DISPLAY = RCPADI. Delete any leading semicolon (;) that may be present.
- Change the line that reads MATERIAL-DISPLAY = VGA320X200 to read MATERIAL-DISPLAY = RCPADI. Delete any leading semicolon that may be present.

Windows 3.1, 3.11 and Windows for Workgroups

After using Setup to install the optimized drivers and VIEWTOP Power Tools for Microsoft Windows, you can switch among supported display modes by running the VIEWTOP Control Panel, which is discussed in detail in the next chapter. If you need to re-select a display driver using the native Windows Setup program, please note the following: when Windows notifies you that the requested display driver is already present on the system, and asks you if you want to use the current driver or install a new one, answer [Current]. If you need to re-install the drivers, run the Setup program on the driver installation diskette supplied with the your accelerator. The Windows Setup program cannot read the compressed files on the driver installation diskette.

Asian Double-Byte Versions of Windows — The Setup will auto-detect and include special support for the following Asian double-byte versions of Windows released by Microsoft: Japanese Windows, Traditional Chinese Windows, Simplified Chinese Windows, Korean Windows and Thai/English Windows. This support is completely transparent and is incorporated into the VIEWTOP Power Tools as well; there are no special steps which need to taken or extra software which needs to be installed.

DCI and Video for Windows — A DCI (Display Control Interface) driver designed for optimized video playback with your multimedia accelerator is automatically installed when you install the drivers and support files for

Windows 3.1. The last official release of Microsoft Video for Windows runtime library — Version 1.1e (9/94) —is included and installed with a number of popular application packages like Microsoft Office and CorelDRAW!, and is also widely and freely available from all major online services. If you received a driver installation diskette and do not already have Video for Windows 1.1e installed, you are strongly advised to obtain a copy from your dealer,

local user support groups or an on-line service.

Windows NT

Installation of the Windows NT drivers and utilities will be a two-step procedure: (1) first install the Windows NT support files using the Setup program on the driver distribution diskette, and then (2) install the Windows NT drivers using standard Windows NT procedures. Although we do not recommend this, you can install the display drivers for Windows NT without installing the support files.

> Although the Setup program, at the time this manual was written, can detect and walk you through installation of the NT drivers, as a 16-bit Windows application, Setup may be unable to correctly determine your video hardware configuration.

To install the optimized display drivers for Windows NT, you must be running NT and follow Microsoft's standard display driver installation procedure as documented in the NT user manual. From the NT Program Manager, double-click on the NT Control Panel program in the Main program folder. Then select the Display applet in the Control Panel to change the display driver. Select the proper driver by entering the drive and directory containing the NT drivers (e.g., A:\ or B:\). Note that unlike many of the other drivers on the installation diskette, the NT drivers are stored in a compressed format that can be read by Windows NT.

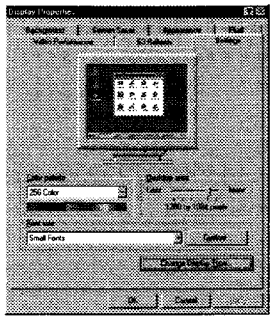
Windows 95

Installation of the Windows 95 drivers and utilities is a two-step procedure: (1) first install the Windows 95 support files using the Setup program, and then (2) install the Windows 95 drivers using standard Windows 95 procedures. Although we do not recommend this, you can install the display drivers for Windows 95 without installing the support files.

To install the optimized drivers for Windows 95 without installing the support files, you must be running Windows 95 and follow these steps. Click the right mouse button anywhere on the Windows 95 desktop and select Properties from the pop-up menu that appears on screen. Select Settings|Change Display Type and then click the [Change] button for Adapter Type. When the Select Device dialog box appears on screen, check

the [Have Disk] button and enter the path to the driver installation diskette (e.g., A:\ or B:\), following the instructions on screen. Unlike many of the other drivers on the installation diskette, the Windows 95 drivers are stored in a compressed format that can be read by Windows 95.

Windows 95 Display Properties — Whether you choose to install the VIEWTOP Power Tools or not, you always have the option of selecting resolution, color depth and font size using the standard Windows 95 *Display* property sheet, which can be accessed by right clicking anywhere on the Windows 95 desktop, and then selecting Properties from the pop-up menu that appears on screen. The Display Properties sheet is illustrated below.



If you're running Windows 95, you may be curious as to why we didn't implement the features of the VIEWTOP Power Tools as a supplemental property sheet, instead of as a separate application. The answer is two-fold: first, the VIEWTOP Control Panel was designed to be backwardly compatible with Windows 3.1, which, of course, doesn't support property sheets; secondly, some VIEWTOP Power Tools features, like QuickKeys and the integrated media player, cannot be implemented as a property sheet.

DirectDraw — DirectDraw drivers designed for optimized video and multimedia playback with your accelerator are automatically installed when you install the drivers for Windows 95. Microsoft's DirectDraw runtime libraries are included and automatically installed when you install the Windows 95 support files using the Setup program on the driver installation diskette.

VIEWTOP Power Tools for Windows

The VIEWTOP Power Tools for Windows are a collection of programs and modules designed to simplify control of your **VIEWTOP BP-S3x** multimedia accelerator, and provide you with easy access to the powerful features it supports. Designed especially for Windows 95, but compiled as a 16-bit Windows application to ensure backwards compatibility with Windows 3.1 and Windows for Workgroups, the VIEWTOP Power Tools provide a superset of the standard graphics and video controls included with Microsoft Windows. Unless otherwise noted, these controls apply to all supported versions of Windows and include:

- **On-the-fly color depth switching for Windows 95, an exclusive technique we refer to as "QuickColor".**
- **On-the-fly resolution switching for Windows 3.1 and Windows 95 (this feature is not supported by all multimedia accelerators under Windows 3.1).**
- **Flexible, on-the-fly refresh rate switching for Windows 3.1 and Windows 95.**
- **Full-screen preview of display settings under Windows 3.1 and Windows 95 (this feature depends on your multimedia accelerator's degree of VESA/VBE support under Windows).**
- **User-defined presets for Windows 3.1 and Windows 95, coupled with "QuickKeys" for Windows 95, which allow you to define and quickly switch among five display settings.**
- **Display power management services for Windows 3.1 and Windows 95, supporting screen blanking, as well as standby, suspend and power-off modes with Energy Star-compliant monitors.**
- **Plug and Play monitor support under Windows 3.1 and Windows 95, as well as support for over 500 pre-Plug and Play monitors.**
- **An integrated media player, featuring a scalable playback window and audio volume controls, which supports both hardware and software MPEG MCI devices (Microsoft shorthand for any multimedia device driver), as well as Video for Windows and Apple Quicktime files.**
- **An attractive and intuitive interface with drag and drop support, extensive use of icons and images, and multi-language on-line hints.**

Installation

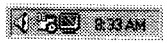
The VIEWTOP Power Tools are automatically installed when you use the Setup program under Windows 3.1, 3.11, Windows for Workgroups, and Windows 95. After installation, you will find a VIEWTOP Power Tools Program Manager group has been created, which consists of three icons:

- VIEWTOP Control Panel — **the core program of the** VIEWTOP Power Tools, **which allows you to change and preview display settings, configure your** VIEWTOP BP-S3x **multimedia accelerator to work optimally with your monitor, enable power management services, and playback multimedia titles.**
- **unInstaller — a simple un-installation utility, which allows you to safely remove the VIEWTOP Power Tools from your hard drive.**
- **Release Notes — a simple ASCII text file, linked to the Windows Notepad utility, which provides you with updated information about your** VIEWTOP BP-S3x **multimedia accelerator and the supplied software.**

You should think of the VIEWTOP Control Panel as an integrated set of programs and modules which share a common interface. Each time the main program is run, it auto-configures itself for the detected Windows version, installed media devices, and your **VIEWTOP BP-S3x** multimedia accelerator's hardware configuration. The VIEWTOP Control Panel is divided into "pages", which give you control over various aspects of your **VIEWTOP BP-S3x** multimedia accelerator's feature set. You cycle through these "pages" using the iconic toolbar in the lower left corner of the program window. Again, unless specifically noted otherwise, these features are available under all supported versions of Windows.

Windows 95 QuickKeys

When you run the VIEWTOP Control Panel under Windows 95 (and under Windows 95 only) a small monitor icon will appear on the system tray, similar to the clock, audio volume control and scheduler icons that the Windows 95 Setup program places there during a typical installation. The system tray with the VIEWTOP Control Panel monitor icon is illustrated below.



When you click on the monitor icon a pop-up menu will appear, giving you instant access to the full VIEWTOP Control Panel program, the integrated media player, or any of the five "preset" display settings which you can configure using the full program. The default settings are illustrated in the menu below, but you are encouraged to change these at your earliest convenience, following the instructions outlined in the next section on *Display Settings*. Since the VIEWTOP Control Panel can switch resolution, refresh rate and color depth "on-the-fly", without restarting Windows, we hope you'll find QuickKeys to be a very useful utility.

256 color or HiColor display setting as Preset-3, for when you want to run multimedia titles or games; and so on.

Games and multimedia titles designed for Windows often look and run best at a low resolution and low refresh rate, for example, at 640x480 pixels with a refresh rate of 60Hz. As to color depth, some experimentation may be necessary: as a general rule, if your application does not look noticeably better in TrueColor or HiColor, select a performance-maximizing 256 color depth instead. Note that, in the interests of speed, Microsoft's DirectDraw library is heavily optimized for a 256 color palette.

On-the-Fly Switching — Under Windows 3.1, changes to display settings are made on-the-fly whenever possible. Under Windows 95, however, changes to display settings, *even changes in color depth*, are almost always made on-the-fly. Under all supported versions of Windows, you are given the opportunity to cancel any changes to display settings both before and immediately after an on-the-fly switch is made.

While we hope you find on-the-fly switching, and particularly QuickColor under Windows 95, an ultimately useful capability, there are limitations that you should be aware of. First, any changes to font size require that Windows be restarted (this is why the QuickKeys module ignores Preset font size information). Second, although all running Windows applications are notified of a change in display settings, different applications respond in different ways to these changes; program icons, in particular, (even VIEWTOP Power Tools icons!) sometimes fail to be accurately repainted as a result of a change in color depth. Finally, although applications themselves do not need to be closed and reopened in response to a change in color depth, it is highly recommended that you close and then reopen any color-sensitive files you may be working with, prior to and after a change in color depth; this is especially important if you are working with multimedia files or bitmapped images.

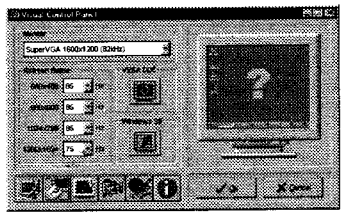
Previewing Display Settings — Although you always have the option of immediately canceling on-the-fly changes to display settings, there are occasions when you may prefer to preview new display settings prior to activating them (particularly under Windows 3.1 which has more limited on-the-fly support). When you elect to preview new display settings, the VIEWTOP Control Panel turns control over to a separate preview utility, which runs as a full-screen DOS application under Windows. The preview utility displays a full spectrum of colors at the selected resolution, color depth and closest BIOS-supported refresh rate, and then returns you to Windows when you press a key. You then have the option of activating the new display settings if the preview screen was acceptable.

Preview depends on your **VIEWTOP BP-S3x** multimedia accelerator's degree of VESA/VBE support *under* Windows, which in turn varies depending on the version of Windows you are running, the chipset which your accelerator is based on, and your driver and BIOS version. If you encounter any problems, please report them to your dealer or support center.

You may be interested to know that the preview utility, VCPMODE.EXE, is a small VESA/VBE-compliant DOS program which can also be run from the DOS command line, performing double-duty as both a preview/test utility and as a general-purpose refresh rate utility. As a refresh rate utility, VCPMODE allows you to override your accelerator's BIOS default refresh rates. The command line syntax for VCPMODE is VCPMODE [Hz], where Hz is the refresh rate in hertz (Hz) you wish to set as the system default (e.g., 60 or 75). As a DOS preview/test utility, VCPMODE allows you to switch to a specific graphics mode and the command line syntax is VCPMODE [Hz] [Mode], where Hz is the refresh rate in hertz (Hz) and Mode is any supported VESA/VBE display mode in hexadecimal (e.g., 0111 for 640x480 pixels in 16-bit HiColor).

Monitor Configuration

The second module or "page" of the VIEWTOP Control Panel is illustrated below and allows you to optionally configure your **VIEWTOP BP-S3x** multimedia accelerator to work with your monitor. Both newer Plug and Play monitors, as well as over 500 older and non-Plug and Play monitors, are supported. When you select a monitor type from the list, the VIEWTOP Control Panel eliminates resolutions and refresh rates from the range of possible display settings which your multimedia accelerator may support, but which your monitor cannot. By default, all possible display settings are available for selection.



If your monitor make and model is not specifically listed, check the specifications in your monitor User's Guide for the maximum resolution (in pixels) or horizontal frequency (in kHz) supported, and then select the closest approximate SuperVGA monitor listed by the VIEWTOP Control Panel.

Monitor — If you're running Windows 95, you should note that the VIEWTOP Control Panel's list of monitors is similar to but independent of, and essentially overrides Windows 95's own list of supported monitors. While this independence is primarily for compatibility with Windows 3.1, it also allows us more flexibility in adding to and revising monitor definitions. You can check Windows 95's own monitor configuration information by clicking on the Windows 95 icon.

Resolutions and Refresh Rates — The resolutions and refresh rates listed tell you what options are available for the selected monitor type. If a particular resolution cannot be displayed on the selected monitor type, it will be disabled.

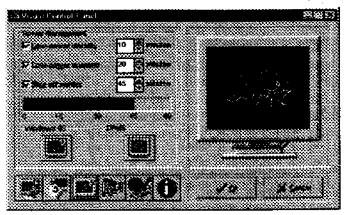
VESA DDC — The VESA Display Data Channel (DDC) is the industry standard specification for Plug and Play monitors. For our purposes here, DDC essentially establishes a way for graphics cards to query a monitor about its capabilities, and for a monitor to reply when queried. Windows 95, for example, is typically configured to query your monitor for DDC information each time it is started. However, since a DDC query pauses application execution and may cause the display to blank, the VIEWTOP Control Panel only queries your monitor for DDC information if you explicitly click on the VESA DDC button. If your monitor supports DDC, the VIEWTOP Control Panel will auto-configure itself for a Plug and Play monitor type, and register your monitor's capabilities in its database.

> Even if you have a Plug and Play monitor, a VESA DDC query may fail if you are using either a sub-standard monitor cable or a professional level BNC cable.

In response to a VESA DDC query, Plug and Play monitors return information about the monitor manufacturer's recommended refresh rates at each supported resolution. Since these recommended refresh rate settings are themselves a subset of VESA recommendations, which in turn are a subset of the refresh rates supported by your **VIEWTOP BP-S3x** multimedia accelerator, a "literal" interpretation of DDC information may not, in fact, deliver optimal settings. For example, the highest recommended VESA refresh rates are 75Hz, but your monitor and **VIEWTOP BP-S3x** multimedia accelerator may very well support much higher, "non-standard" refresh rates at a given resolution. Because of the limited number of VESA standard refresh rates, the VIEWTOP Control Panel takes a somewhat unorthodox approach to DDC information, computing and comparing the monitor manufacturer's VESA recommendations with the full range of refresh rate settings supported by your **VIEWTOP BP-S3x** multimedia accelerator.

Power Management

The third module or "page" of the VIEWTOP Control Panel is illustrated below, allowing you to configure and activate the power saving features of Energy Star-compliant monitors. Even if you do not have an Energy Star-compliant monitor, you may be interested to know that simply blanking the screen can reduce monitor power consumption by 50 percent or more, according to one major monitor manufacturer.



Power Management — The VIEWTOP Control Panel supports three VESA power saving states:

- **Standby mode** delivers minimal power savings but provides the fastest recovery time.
- **Suspend mode** delivers maximum savings but requires a somewhat longer recovery time than standby mode.
- **Off mode** turns the monitor off and recovery time is practically equivalent to turning the monitor on.

The times you enter specify the period of inactivity before a power saving state should be activated, and range from 1 to 60 minutes.

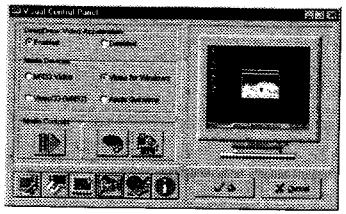
For your information, the VIEWTOP Control Panel does not actually activate power management itself, and therefore does not need to be running for your power management settings to take effect. Instead, you use the VIEWTOP Control Panel to configure a special VESA DPMS screen saver with the file name VCPDPMS.SCR, which is part of the VIEWTOP Power Tools. Windows itself automatically loads the screen saver when a power saving state requires activation, and unloads the screen saver when you resume working on your computer. Note that the screen saver can be safely used even with monitors that are not Energy Star-compliant; in which case, the screen will be blanked.

Windows 95 — If you're running Windows 95, you may prefer to use Windows 95's own display power management support, rather than the VIEWTOP Control Panel's. Windows 95's internal support is compatible with other screen savers, but does not support Suspend mode. 7

DPMS — The DPMS (or Display Power Management Services) button allows you to test both your **VIEWTOP BP-S3x** multimedia accelerator and optionally your monitor for power management support. When you click this button, the VIEWTOP Control Panel will first report the power saving states supported by your **VIEWTOP BP-S3x** multimedia accelerator, and then give you the option of immediately placing your monitor in standby mode. If your monitor is Energy Star-compliant, the screen will blank for approximately ten seconds before the VIEWTOP Control Panel wakes your monitor up.

Multimedia

The fourth module or "page" of the VIEWTOP Control Panel is illustrated below. It both provides information about, and lets you configure and open installed MCI devices, using either the integrated media player or Window's standard media player.



Video Acceleration — Although there is no reason to disable video acceleration, under Windows 3.1 you do have the option of enabling and disabling DCI video acceleration. Under Windows 95, DirectDraw video acceleration should always be enabled and cannot be disabled.

Media Devices — The Media Devices group lists installed MCI devices which are compatible with the VIEWTOP Control Panel's integrated media player (see below). These devices and their associated file types will be available when you open the integrated media player (see below); others types of MCI devices you may have installed should be accessible from the standard Windows media player.

Media Controls — The Media Controls group features three icons: the first opens the VIEWTOP Control Panel's integrated media player (see below); the second loads the standard Windows media player (MPLAYER.EXE); and the third loads the media device configuration applet, which is part of the Windows Control Panel.

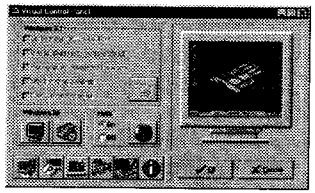
Media Player — When you open the VIEWTOP Control Panel's integrated media player, the VIEWTOP Control Panel window is minimized and the integrated Media Player window appears, with a toolbar across the top and status bar across the bottom as illustrated below.

The toolbar holds easily identifiable iconic buttons which allow you to select a file or VideoCD for playback, enlarge or reduce the size of the playback window, increase, decrease or mute audio volume, and play, pause, stop, step through and rewind the multimedia file or title. The status bar keeps you informed of the open title and playback progress.

If your system is equipped with multiple CD-ROM drives, you may be pleased to know that the VIEWTOP Control Panel will search *all* inserted CDs for a valid VideoCD or CD-I title. You are not confined to using the first logical CD-ROM drive.

Advanced Options

The fifth module or "page" of the VIEWTOP Control Panel is illustrated below. Under Windows 95, these controls give you access to standard Windows control like Display Properties and Performance; under Windows 3.1, available controls depend on which chipset your multimedia accelerator is based on. You also have the option of enabling or disabling the VIEWTOP Control Panel's "hints", and of changing language support on-the-fly.



Windows 3.1 Options — The advanced options for Windows 3.1 are provided to allow you to *disable* specific driver acceleration features in the event of a compatibility problem; a default settings button is also provided. In addition, you have the option of adding a call to VCPMODE to your AUTOEXEC.BAT file, to set the system default refresh rate each time the system is started (see the notes on Preview in the *Display Settings* section earlier in this manual for details).

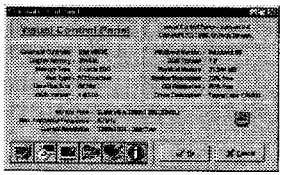
Windows 95 Options — The two icons in the Windows 95 group load the standard Windows 95 dialog boxes for Display Properties and the Performance property sheet of the System Properties dialog box.

Hints — The VIEWTOP Control Panel features on-line hints in a number of languages, which you can switch among on-the-fly. When you install the VIEWTOP Power Tools, the Setup program will attempt to auto-detect the correct language, but after installation you are free to change the language at any time by simply clicking on the Language button and selecting the language of your choice from the pop-up menu that appears. You also have the option of disabling on-line hints altogether.

> Some of the supported languages require special font support which is provided with Windows. You cannot, for example, view the on-line hints in Japanese unless you are running Microsoft's Japanese edition of Windows.

Information

The sixth and final module or "page" of the VIEWTOP Control Panel provides diagnostic information, which may help you and your dealer or support center to resolve problems that may arise under normal use of the program. A typical information page is illustrated below and is largely self-explanatory.



Appendix A. Video Modes

Standard VGA Modes

MODE	TYPE	COLORS SHADES	ALPHA FORMAT	Sweep/Refresh rate	Dot Clock (MHz)	Memory Required
00	Text	B/W	40x25	31.5KHz/70Hz	25.175	1MB
00*	Text	B/W	40x25	31.5KHz/70Hz	25.175	1MB
00+	Text	B/W	40x25	31.5KHz/70Hz	28.322	1MB
01	Text	16	40x25	31.5KHz/70Hz	25.175	1MB
01*	Text	16	40x25	31.5KHz/70Hz	25.175	1MB
01+	Text	16	40x25	31.5KHz/70Hz	25.175	1MB
02	Text	B/W	80x25	31.5KHz/70Hz	25.175	1MB
02*	Text	B/W	80x25	31.5KHz/70Hz	25.175	1MB
02+	Text	B/W	80x25	31.5KHz/70Hz	28.322	1MB
03	Text	16	80x25	31.5KHz/70Hz	25.175	1MB
03*	Text	16	80x25	31.5KHz/70Hz	25.175	1MB
03+	Text	16	80x25	31.5KHz/70Hz	28.322	1MB
04	Graph	4	320x200	31.5KHz/70Hz	25.175	1MB
05	Graph	4	320x200	31.5KHz/70Hz	25.175	1MB
06	Graph	2	320x200	31.5KHz/70Hz	28.322	1MB
07	Text	Mono	80x25	31.5KHz/70Hz	28.322	1MB
07+	Text	Mono	80x25	31.5KHz/70Hz	25.175	1MB
0D	Graph	16	320x200	31.5KHz/70Hz	25.175	1MB
0E	Graph	16	640x200	31.5KHz/70Hz	25.175	1MB
0F	Graph	Mono	640x350	31.5KHz/70Hz	25.175	1MB
10	Graph	16	640x350	31.5KHz/70Hz	25.175	1MB
11	Graph	2	640x480	31.5KHz/60Hz	25.175	1MB
12	Graph	16	640x480	31.5KHz/60Hz	25.175	1MB
13	Graph	256	320x200	31.5KHz/70Hz	25.175	1MB

Enhanced Video Modes

MODE (HEX)	Screen Resolution	Bits Pixel	Sweep (KHz)	Refresh Rate (KHz/Hz)	Dot Clock (MHz)	Memory Required
10A	132×43Chars	4	31.5	70	40.000	1MB
109	132×25Chars	4	31.5	70	40.000	1MB
100	640×480	8	31.5	70	25.175	1MB
101	640×480	8	31.5	60	25.175	1MB
101	640×480	8	37.9	72	31.500	1MB
101	640×480	8	37.5	75	31.500	1MB
101 *	640×480	8	45.2	85	36.000	1MB
102	800×600	4	37.9	60	40.000	1MB
102	800×600	4	48.1	72	50.000	1MB
102	800×600	4	47.5	75	49.500	1MB
102 *	800×600	4	53.58	85	56.600	1MB

MODE (HEX)	Screen Resolution	Bits Pixel	Sweep (KHz)	Refresh Rate (KHz/Hz)	Dot Clock (MHz)	Memory Required
103	800×600	8	37.9	60	40.000	1MB
103	800×600	8	48.1	72	50.000	1MB
103	800×600	8	46.8	75	49.500	1MB
103 *	800×600	8	53.55	85	56.600	1MB
104	1024×768	4	35.5	43(I)	44.900	1MB
104	1024×768	4	48.4	60	65.000	1MB
104	1024×768	4	56.5	70	75.000	1MB
104	1024×768	4	60.9	75	80.000	1MB
104 *	1024×768	4	68.73	85	94.500	1MB
105	1024×768	8	35.5	43(I)	44.900	1MB
105	1024×768	8	48.4	60	65.000	1MB
105	1024×768	8	56.5	70	75.000	1MB
105	1024×768	8	60.0	75	80.000	1MB
105 *	1024×768	8	68.73	85	94.500	1MB
106	1280×1024	4	46.0	45(I)	75.000	1MB
107	1280×1024	8	46.0	45(I)	75.000	2MB
107	1280×1024	8	65.0	60	56.000×2	2MB
107	1280×1024	8	77.7	72	65.000×2	2MB
107	1280×1024	8	79.5	75	67.500×2	2MB
110	640×480	15	31.5	60	25.175	1MB
110	640×480	15	37.5	72	31.500	1MB
110	640×480	15	37.5	75	31.500	1MB
110 *	640×480	15	44.97	85	36.000	1MB
111	640×480	16	31.5	60	25.175	1MB
111	640×480	16	37.5	72	31.500	1MB
111	640×480	16	37.5	75	31.500	1MB
111 *	640×480	16	44.9	85	36.000	1MB
112	640×480	32	31.5	60	50.000	2MB
112	640×480	32	37.9	72	65.000	2MB
112	640×480	32	37.5	75	65.000	2MB
112 *	640×480	32	45.2	85	36.000	2MB
113	800×600	15	40.0	60	40.000	2MB
113	800×600	15	48.1	72	50.000	1MB
113	800×600	15	46.8	75	49.500	1MB
113*	800×600	15	53.5	85	56.600	1MB
114	800×600	16	40.0	60	40.000	1MB
114	800×600	16	48.1	72	49.500	1MB
114	800×600	16	46.8	75	50.000	1MB
115	800×600	32	37.9	60	77.000	2MB
115	800×600	32	48.1	72	94.500	2MB
115	800×600	32	46.8	75	94.500	2MB
116	1024×768	16	35.0	43(I)	44.900	2MB
116	1024×768	15	48.9	60	65.000	2MB

MODE (HEX)	Screen Resolution	Bits Pixel	Sweep (KHz)	Refresh Rate (KHz/Hz)	Dot Clock (MHz)	Memory Required
116	1024×768	15	56.5	70	75.000	2MB
116	1024×768	15	60.2	75	80.000	2MB
117	1024×768	16	35.0	43(I)	44.900	2MB
117	1024×768	16	48.9	60	65.000	2MB
117	1024×768	16	56.5	70	75.000	2MB
117	1024×768	16	60.2	75	80.000	2MB
118	1024×768	32	35.2	43(I)	44.900	4MB
119	1280×1024	15	60.2	45(I)	75.000	4MB
11A	1280×1024	16	60.2	45(I)	75.000	4MB
120	1600×1200	8	74.5	48.5(I)	65.000×2	2MB
201	640×480	8	31.5	60	25.175	1MB
201	640×480	8	37.9	72	31.500	1MB
201	640×480	8	37.5	75	31.500	1MB
202	800×600	4	37.9	60	40.000	1MB
202	800×600	4	48.1	72	50.000	1MB
202	800×600	4	49.0	75	49.500	1MB
203	800×600	8	37.9	60	40.000	1MB
203	800×600	8	48.1	72	50.000	1MB
203	800×600	8	46.8	75	49.500	1MB
204	1024×768	4	35.5	43(I)	44.900	1MB
204	1024×768	4	48.4	60	65.000	1MB
204	1024×768	4	56.5	70	75.000	1MB
204	1024×768	4	60.9	75	80.000	1MB
205	1024×768	8	35.5	43(I)	44.900	1MB
205	1024×768	8	48.4	60	65.000	1MB
205	1024×768	8	56.5	70	75.000	1MB
205	1024×768	8	60.0	75	80.000	1MB
207	1152×864	8	55.0	60	80.000	1MB
208	1280×1024	4	47.7	43(I)	75.000	1MB
208	1280×1024	4	65.0	60	55.000×2	1MB
208	1280×1024	4	77.7	72	65.000×2	1MB
208	1280×1024	4	79.5	75	67.500×2	1MB
212	640×480	24	31.5	60	77.000	1MB

NOTE: